Appendix C: xAL Standard

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xAL Standard

1.1 Overview

The goal of eXtensible Address Language (xAL) is to represent an Address component in XML format such that it is vendor neutral, application independent, global and open. It has been developed by the Organization for the Advancement of Structured Information Standards (OASIS). xAL defines a hierarchy of address components that can be easily extended by adding application specific elements. Thus, any CRM, Data Quality, Data Warehousing or Postal Services application can use xAL or parts of it to represent international addresses in a common standard format.

xAL strives to handle addresses considering the following factors:

- 241+ countries
- 5000+ languages
- 130+ address formats

1.2 Design Considerations

xAL has adopted a hierarchical model to represent an address component. For example, an address in xAL is represented where by a country has states or provinces, a state has cities, a city has streets etc. Since the goal of the standard is flexibility, it is quite expansive and allows implementers a vast range of choices regarding address representation.

All elements within the schema are declared globally to facilitate reuse by other schemas, and most elements can include child elements and attributes from other namespaces.

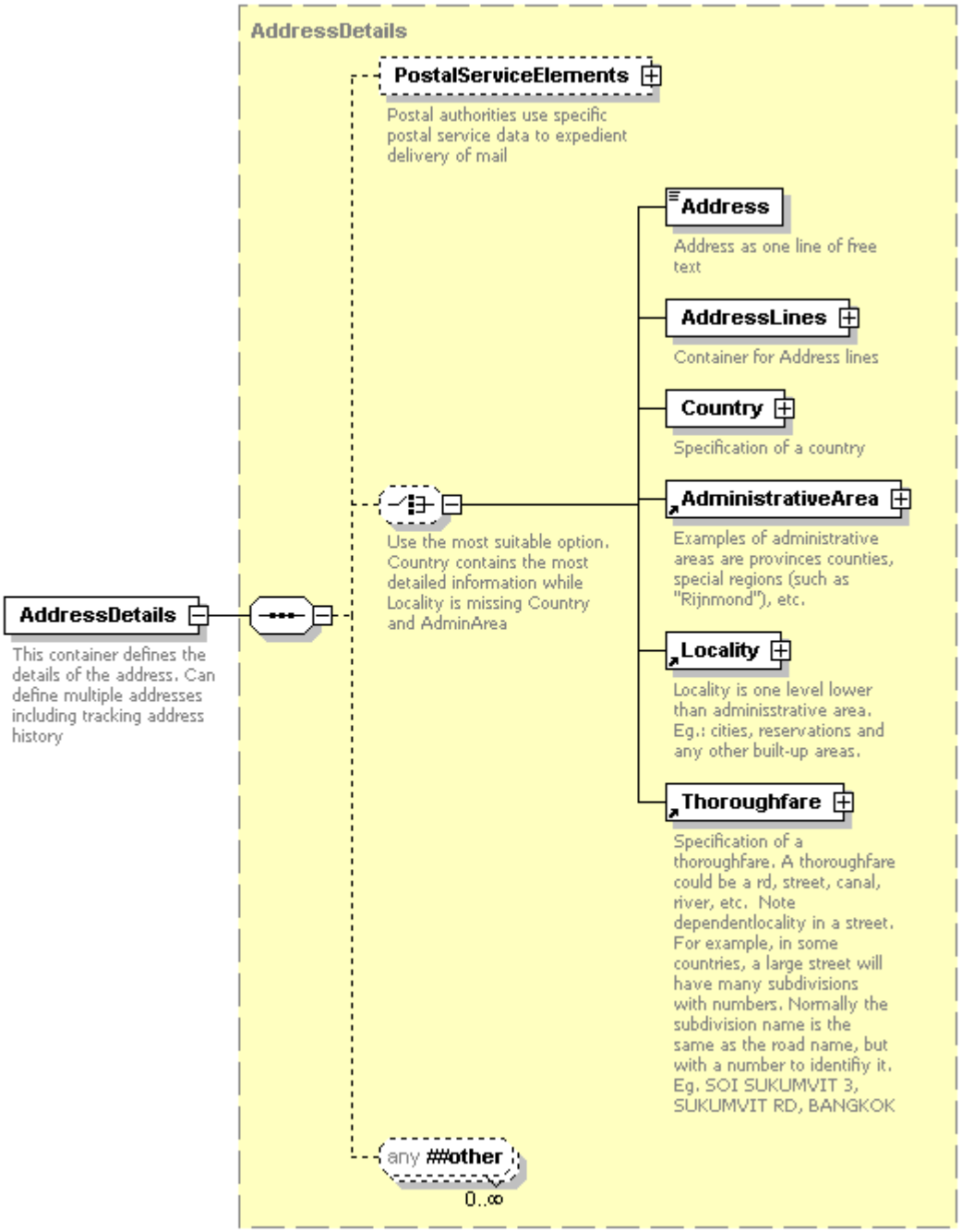
1.3 xAL Components

These are the main components that make up the xAL address definition.

xAL
This is the root element that contains one or more AddressDetails elements.

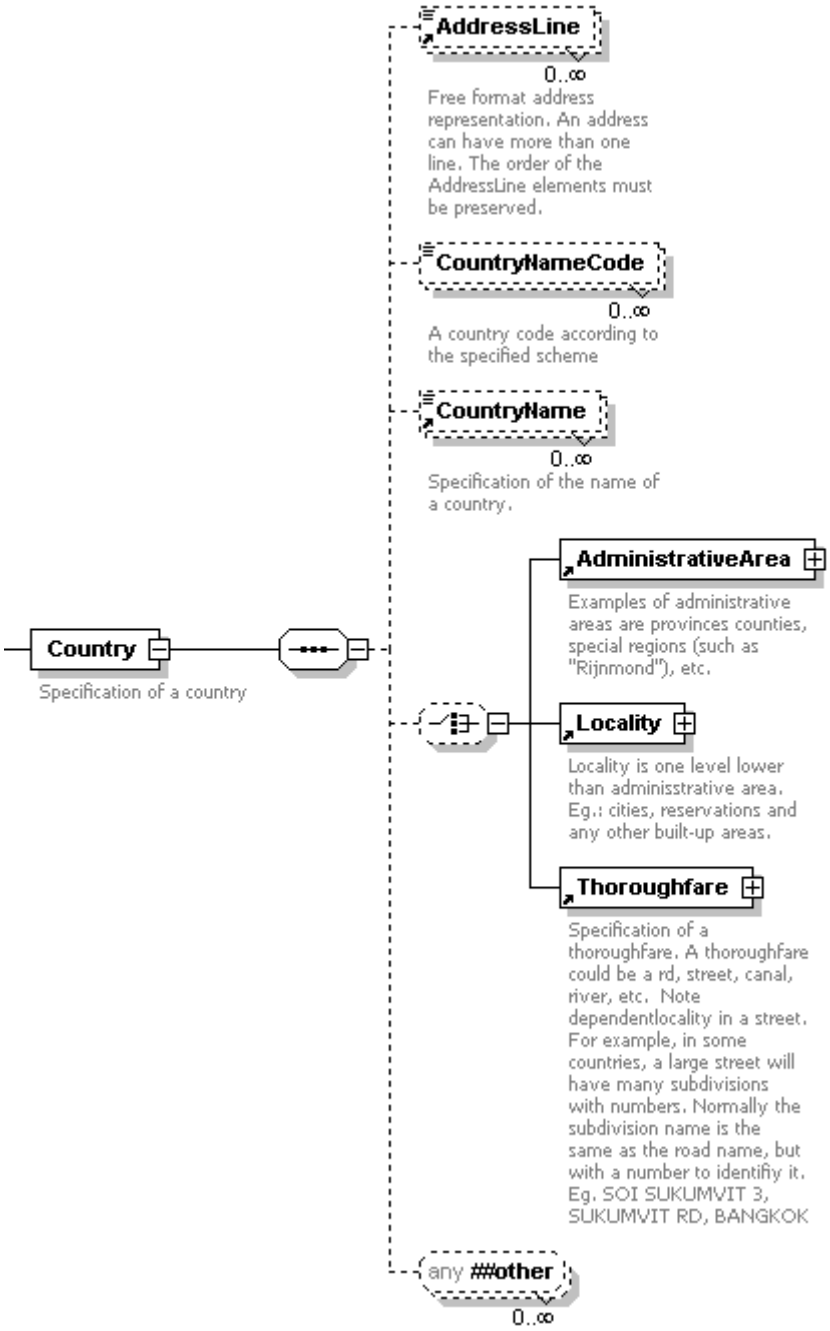
AddressDetails

The AddressDetails element is the main container for address components and consists of an optional choice between Country, AdministrativeArea, Locality or Thoroughfare element.



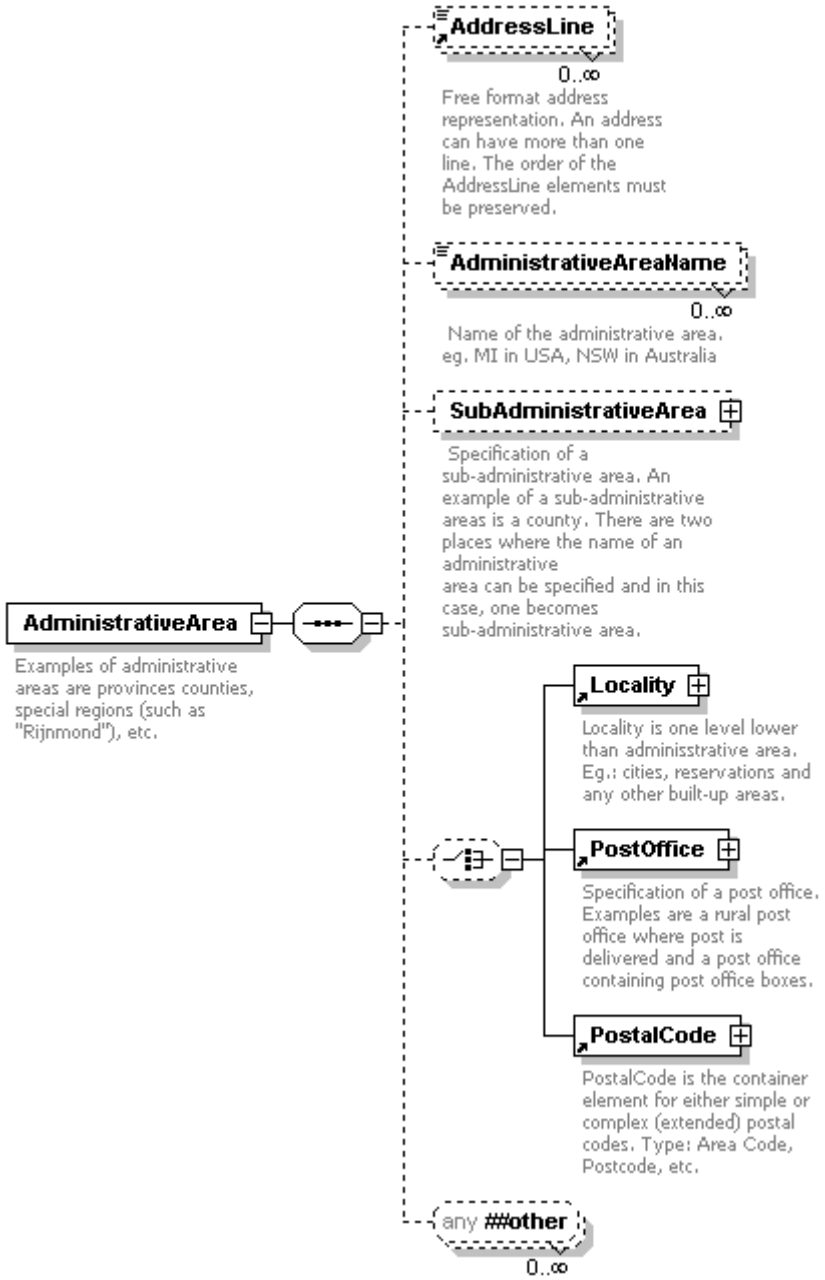
Country

The Country element optionally consists of CountryNameCode, CountryName, and a choice to nest an AdministrativeArea, Locality or Thoroughfare within.



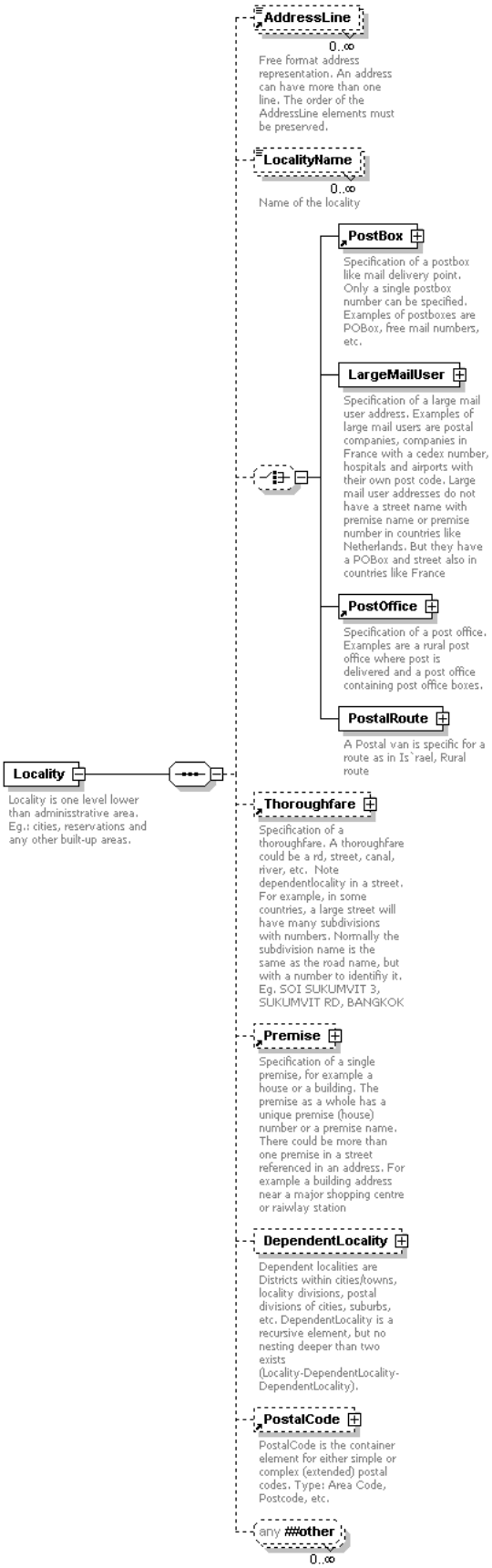
AdminstrativeArea

The AdministrativeArea element is generally used to represent large regions of a country such as state, province, municipality etc. It optionally contains an AdministrativeAreaName, SubAdministrativeArea and a choice between Locality, PostOffice and PostalCode.



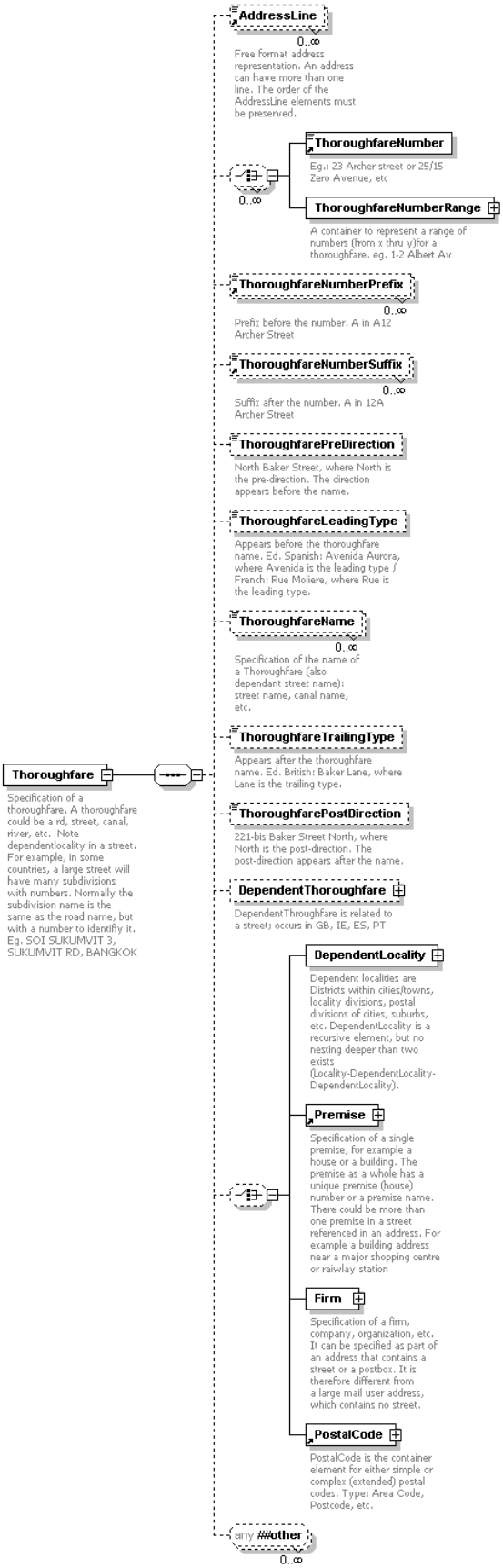
Locality

Locality represents smaller regions within an AdministrativeArea such as cities, towns, sectors etc. The Locality element optionally contains a LocalityName, Thoroughfare, Premise, DependentLocality, PostalCode and a choice between PostBox, LargeMailUser, PostOffice and PostalRoute.


AddressLine
0..∞
Free format address representation. An address can have more than one line. The order of the AddressLine elements must be preserved.
LocalityName
0..∞
Name of the locality
PostBox
Specification of a postbox like mail delivery point. Only a single postbox number can be specified. Examples of postboxes are POBox, free mail numbers, etc.
LargeMailUser
Specification of a large mail user address. Examples of large mail users are postal companies, companies in France with a cedex number, hospitals and airports with their own post code. Large mail user addresses do not have a street name with premise name or premise number in countries like Netherlands. But they have a POBox and street also in countries like France
PostOffice
Specification of a post office. Examples are a rural post office where post is delivered and a post office containing post office boxes.
PostalRoute
A Postal van is specific for a route as in Is`rael, Rural route
Locality
Locality is one level lower than administrative area. Eg.: cities, reservations and any other built-up areas.
Thoroughfare
Specification of a thoroughfare. A thoroughfare could be a rd, street, canal, river, etc. Note dependentlocality in a street. For example, in some countries, a large street will have many subdivisions with numbers. Normally the subdivision name is the same as the road name, but with a number to identifiy it. Eg. SOI SUKUMVIT 3, SUKUMVIT RD, BANGKOK
Premise
Specification of a single premise, for example a house or a building. The premise as a whole has a unique premise (house) number or a premise name. There could be more than one premise in a street referenced in an address. For example a building address near a major shopping centre or raiwlay station
DependentLocality
Dependent localities are Districts within cities/towns, locality divisions, postal divisions of cities, suburbs, etc. DependentLocality is a recursive element, but no nesting deeper than two exists (Locality-DependentLocality-DependentLocality).
PostalCode
PostalCode is the container element for either simple or complex (extended) postal codes. Type: Area Code, Postcode, etc.
any ##other
0..∞

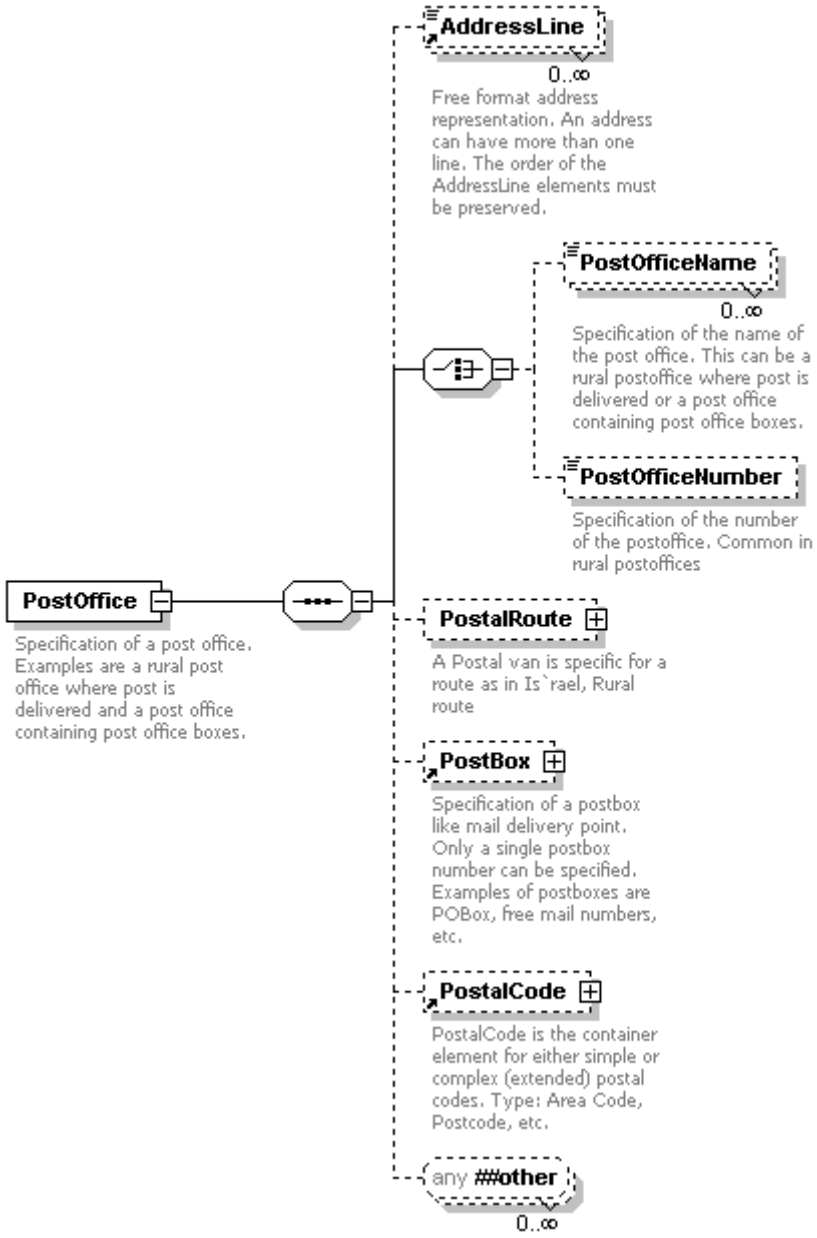
Thoroughfare

The Thoroughfare element generally represents the street level address and has numerous sub elements to define the various features of a street address. Some of these optional elements include ThouroughfareNumber, ThoroughFareName, ThoroughfarePostDirection, DependentThoroughfare, and a choice between DependentLocality, Premise and PostalCode.


Thoroughfare
Specification of a thoroughfare. A thoroughfare could be a rd, street, canal, river, etc. Note dependentlocality in a street. For example, in some countries, a large street will have many subdivisions with numbers. Normally the subdivision name is the same as the road name, but with a number to identifiy it. Eg. SOI SUKUMVIT 3, SUKUMVIT RD, BANGKOK
AddressLine
0..∞
Free format address representation. An address can have more than one line. The order of the AddressLine elements must be preserved.
ThoroughfareNumber
Eg.: 23 Archer street or 25/15 Zero Avenue, etc
ThoroughfareNumberRange
A container to represent a range of numbers (from x thru y)for a thoroughfare. eg. 1-2 Albert Av
0..∞
ThoroughfareNumberPrefix
0..∞
Prefix before the number. A in A12 Archer Street
ThoroughfareNumberSuffix
0..∞
Suffix after the number. A in 12A Archer Street
ThoroughfarePreDirection
North Baker Street, where North is the pre-direction. The direction appears before the name.
ThoroughfareLeadingType
Appears before the thoroughfare name. Ed. Spanish: Avenida Aurora, where Avenida is the leading type / French: Rue Moliere, where Rue is the leading type.
ThoroughfareName
0..∞
Specification of the name of a Thoroughfare (also dependant street name): street name, canal name, etc.
ThoroughfareTrailingType
Appears after the thoroughfare name. Ed. British: Baker Lane, where Lane is the trailing type.
ThoroughfarePostDirection
221-bis Baker Street North, where North is the post-direction. The post-direction appears after the name.
DependentThoroughfare
DependentThroughfare is related to a street; occurs in GB, IE, ES, PT
DependentLocality
Dependent localities are Districts within cities/towns, locality divisions, postal divisions of cities, suburbs, etc. DependentLocality is a recursive element, but no nesting deeper than two exists (Locality-DependentLocality-DependentLocality).
Premise
Specification of a single premise, for example a house or a building. The premise as a whole has a unique premise (house) number or a premise name. There could be more than one premise in a street referenced in an address. For example a building address near a major shopping centre or railway station
Firm
Specification of a firm, company, organization, etc. It can be specified as part of an address that contains a street or a postbox. It is therefore different from a large mail user address, which contains no street.
PostalCode
PostalCode is the container element for either simple or complex (extended) postal codes. Type: Area Code, Postcode, etc.
any ##other
0..∞

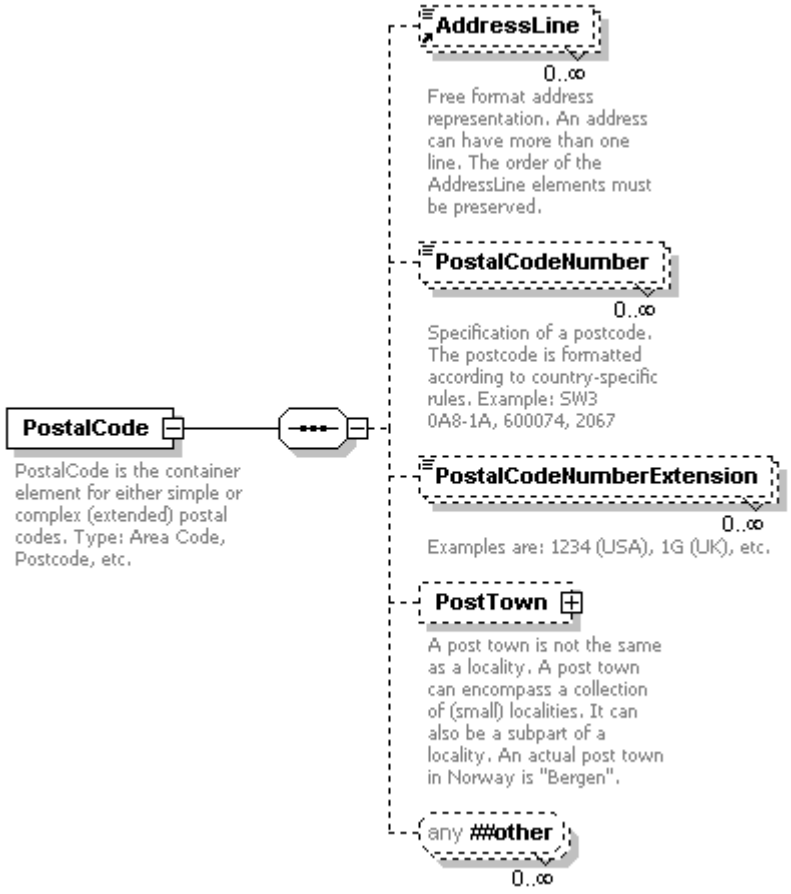
PostOffice

This element is used in the case of rural addresses where a post office is used to deliver mail through individual post boxes within the offices. The PostOffice Element can optionally have a PostOfficeName, PostalRoute, PostBox and a PostCode.



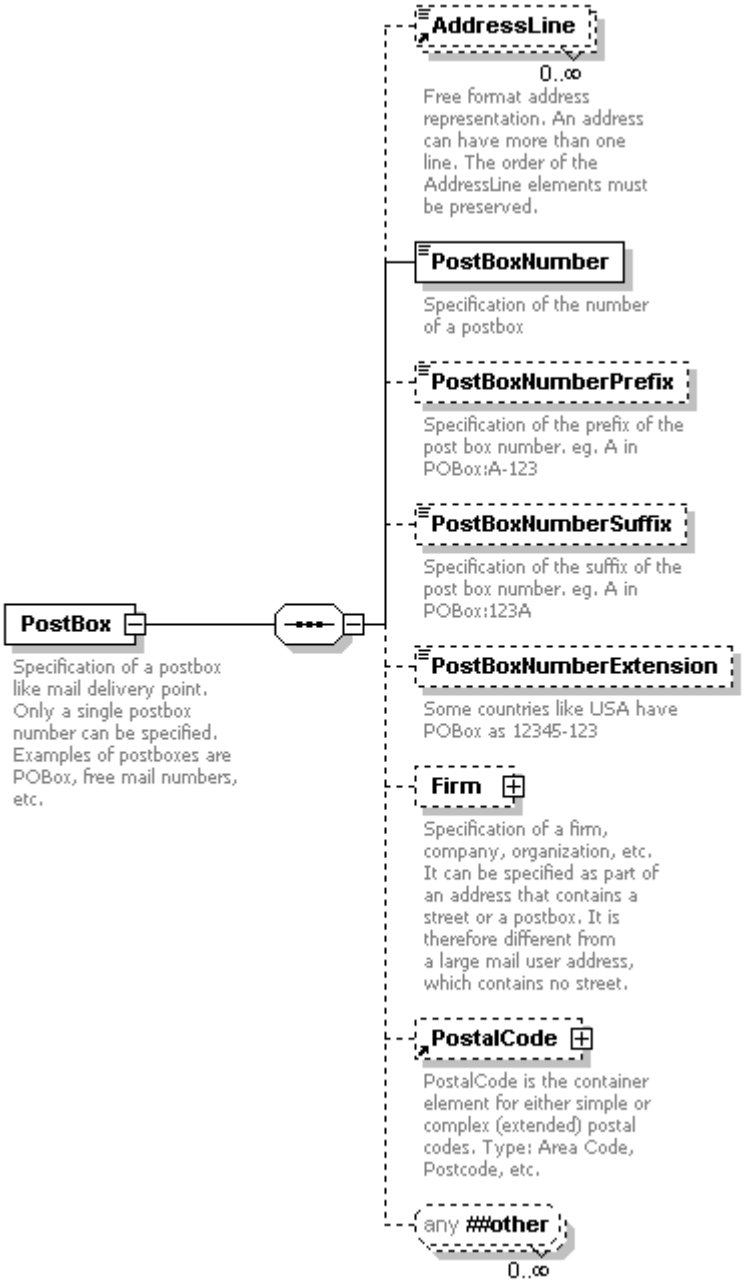
PostalCode

The PotalCode element represents a simple or complex postal code and can have a PostalCodeNumber, PostalNumberExtension and a PostTown.



PostBox

The PostBox element must have a PostBoxNumber and can have prefixes, suffixes, extensions and a PostalCode.



1.4 xAL Pros

- **Global** - Due to the hierarchical nature and expansiveness of the xAL structure, it is possible to represent a vast array of address types from all over the world.
- **Flexible** - The implementers of xAL make the decisions as to which components to use and are able to add their own components.
- **Application Independent** - Unlike some other Address standardization efforts, xAL is not geared towards the postal industry and is application and vendor neutral.

1.5 xAL Cons

- **Inextensible** - Most of the components within the xAL schema are declared as elements rather than types. Therefore it is not possible to derive from them to extend or restrict the definitions.
- **Hierarchical** - It is not possible to change the hierarchical nature of the address representation.

1.6 xAL Adoption

The xAL standard is part of the Customer Information Quality (CIQ) standard, which is being developed by OASIS to improve the representation of customer data to better facilitate trade and e-commerce. The xAL Technical Committee is comprised of members from several leading technology companies who are looking to adopt xAL as an address representation format. These companies include Microsoft Corporation, XML Global Technologies, MSI Business Systems and Journee Software Corporation.

A reference implementation of the CIQ standard has been a fully operational part of Journee's ServiceStream software since October 2002. Journee Software provides strategic solutions that help companies build integrated customer information systems. ServiceStream uses the CIQ model to represent a common set of customer data that can be shared by multiple applications within the enterprise. Companies can use ServiceStream's tools to easily modify and extend the model, accelerating development schedules and reducing data integration costs.

The MedBiquitous Consortium is creating a comprehensive XML framework for professional medical societies. With this common technology platform and enabling Web services, societies will be able to exchange an unprecedented amount of information and resources to improve business processes and support medical education. The MedBiquitous XML Standards rely on the xAL schemas and namespaces to represent address information.

The Human Markup Language is an effort by OAIS to convey the human characteristics through XML, containing sets of modules which frame and embed contextual human characteristics including cultural, social, kinesics, psychological, and intentional features within conveyed information. The Human Markup Language schemas use the xAL schemas and namespaces.

1.7 xAL Usage

The following examples demonstrate how xAL can be used to represent different address forms.

Egis Building, Level 12
67 Albert Avenue, Chatswood
NSW 2067, Australia

```
<AddressDetails>
    <Country>
        <CountryName>Australia</CountryName>
        <AdministrativeArea>
            <AdministrativeAreaName>NSW</AdministrativeAreaName>
            <Locality>
                <LocalityName>Chatswood</LocalityName>
                <Thoroughfare Type="Street">
                    <ThoroughfareNumber>67</ThoroughfareNumber>
                    <ThoroughfareName>Archer Street</ThoroughfareName>
                    <Premise Type="Building">
                        <BuildingName>Egis</BuildingName>
                        <SubPremise Type="LEVEL">
                            <SubPremiseNumber>12</SubPremiseNumber>
                        </SubPremise>
                    </Premise>
                </Thoroughfare>
                <PostalCode>
                    <PostalCodeNumber>2067</PostalCodeNumber>
                </PostalCode>
            </Locality>
        </AdministrativeArea>
    </Country>
</AddressDetails>
```

Floor 4, Ste 5, Block C
Carnegie VIII
43 West Archer Street
Boulder, CO 80302-4598, USA

```
<AddressDetails>
    <Country>
        <CountryNameCode>US</CountryNameCode>
        <CountryName>USA</CountryName>
        <AdministrativeArea>
            <AdministrativeAreaName>COLORADO</AdministrativeAreaName>
            <Locality>
                <LocalityName>BOULDER</LocalityName>
                <Thoroughfare>
                    <ThoroughfareNumber>43</ThoroughfareNumber>
                    <ThoroughfarePreDirection>WEST</ThoroughfarePreDirection>
                    <ThoroughfareName>ARCHER</ThoroughfareName>
                    <ThoroughfareTrailingType>Street</ThoroughfareTrailingType>
                    <Premise Type="BUILDING">
                        <PremiseName>CARNEGIE VIII</PremiseName>
                        <SubPremise Type="BLOCK">
                            <SubPremiseNumber>C</SubPremiseNumber>
                            <SubPremise Type="STE">
                                <SubPremiseNumber>5</SubPremiseNumber>
```

```
                                <SubPremise Type="FLOOR">
                                    <SubPremiseNumber>4</SubPremiseNumber>
                                </SubPremise>
                            </SubPremise>
                        </SubPremise>
                    </Premise>
                </Thoroughfare>
                <PostalCode>
                    <PostalCodeNumber>80302</PostalCodeNumber>
                    <PostalCodeNumberExtension Type="DeliveryPointSuffix">4598</PostalCodeNumberExtension>
                </PostalCode>
            </Locality>
        </AdministrativeArea>
    </Country>
</AddressDetails>
```

5 Aviation Regiment
RAAF Base
Milpo, Townsville
4814, Australia

```
<AddressDetails>
    <Country>
        <CountryName>Australia</CountryName>
        <Locality>
            <LocalityName>Townsville</LocalityName>
            <DependentLocality>
                <DependentLocalityName>Milpo</DependentLocalityName>
                <LargeMailUser Type="Military">
                    <LargeMailUserName>RAAF</LargeMailUserName>
                    <LargeMailUserIdentifier>5 Aviation Regiment</LargeMailUserIdentifier>
                </LargeMailUser>
            </DependentLocality>
            <PostalCode>
                <PostalCodeNumber>4814</PostalCodeNumber>
            </PostalCode>
        </Locality>
    </Country>
  </AddressDetails>
```